Assignment 2

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Title: Shell Programming

Objective: Write a shell script covering – basic arithmetic, control structures, loops, execution of Linux command in shell, command line arguments, functions and array.

1. Write a shell script to check if a given input string is a palindrome or not.

palindrome.sh

```
#!/bin/bash
echo "Enter a String"
read input
reverse=""

len=${#input}
for (( i=$len-1; i>=0; i-- ))
do
        reverse="$reverse${input:$i:1}"
done
if [ $input == $reverse ]
then
   echo "$input is palindrome"
else
   echo "$input is not palindrome"
fi
```

Output:

```
student@Ubuntu:~$ nano palindrome.sh
student@Ubuntu:~$ chmod +x palindrome.sh
student@Ubuntu:~$ ./palindrome.sh
Enter a String
yash
yash is not palindrome
student@Ubuntu:~$ ./palindrome.sh
Enter a String
yay
yay is palindrome
student@Ubuntu:~$ ./palindrome.sh
Enter a String
level
level is palindrome
student@Ubuntu:~$
```

2. Write a shell script to sort given array of numbers using bubble sort.

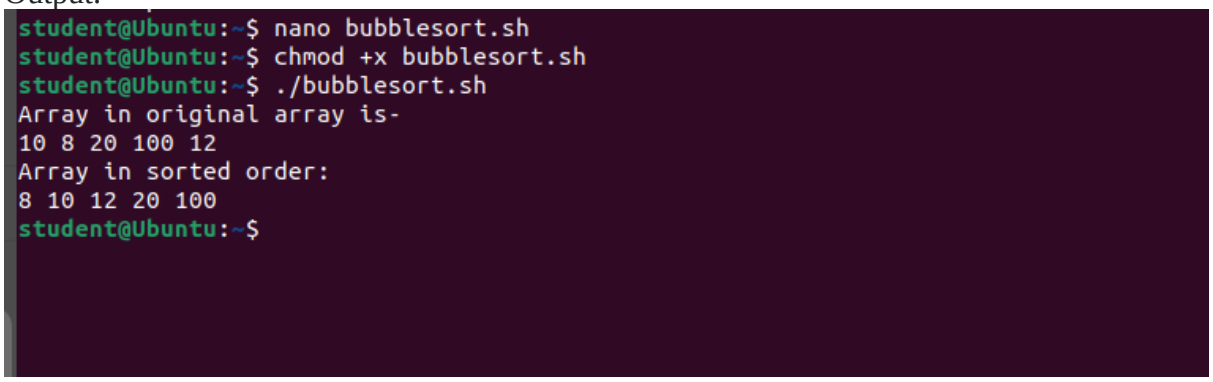
bubblesort.sh

```
#!/bin/bash
arr=(10 8 20 100 12)
echo "Array in original array is-"
echo ${arr[*]}

for((i=0; i<5; i++))
do
for((j=0; j<5-i-1; j++))
do
if [ ${arr[j]} -gt ${arr[$((j+1))]} ]
then
temp=${arr[j]}
arr[$j]=${arr[$((j+1))]}
arr[$((j+1))]=$temp
fi
done
done

echo "Array in sorted order: "
echo ${arr[*]}
```

Output:



3. Write a shell script to check if a given substring exists within a string and finds the position of occurrences within the string.

substring.sh

```
#!/bin/bash
find_substring() {
string="$1"
substring="$2"
```

```
length=${#substring}

for (( i=0; i<${#string}; i++ ))
do
if [[ ${string:$i:$length} == "$substring" ]]
then
echo "Substring found at position $i"
fi
done
}

echo "Enter the string: "
read string
echo "Enter the substring to search for: "
read substring

find_substring "$string" "$substring"
```

Output:

```
student@Ubuntu:~$ nano substring.sh
student@Ubuntu:~$ chmod +x substring.sh
student@Ubuntu:~$ ./substring.sh
Enter the string:
qwdfwedf
Enter the substring to search for:
wed
Substring found at position 4
student@Ubuntu:~$ ./substring.sh
Enter the string:
hello world
Enter the substring to search for:
world
Substring found at position 6
student@Ubuntu:~$
```